Bolt™

Inspiration strikes.

VS-5100P

WIRELESS TTL FLASH

User's Manual

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Introduction

Thank you for choosing the Bolt VS-5100P Wireless TTL Flash. This advanced digital flash unit puts creative control in your hands with a broad range of automatic and manual features. It can be used as both an on-camera flash and a wireless slave flash. Among the benefits you'll enjoy:

- Full compatibility with Olympus and Panasonic's TTL metering systems
- Wireless TTL control with multiple flash units and groups
- Automatic and manual zoom from 24mm to 105mm
- Tilt and swivel head: 90° up, 120° right, and 180° left
- 1.8-inch backlit LCD
- Six manual flash levels: full to 1/32 power
- Autofocus-assist for low-light photography
- High-speed sync
- Rear-curtain sync
- Built-in reflector and diffuser panels
- Automatic power-saving function
- Upgradeable firmware

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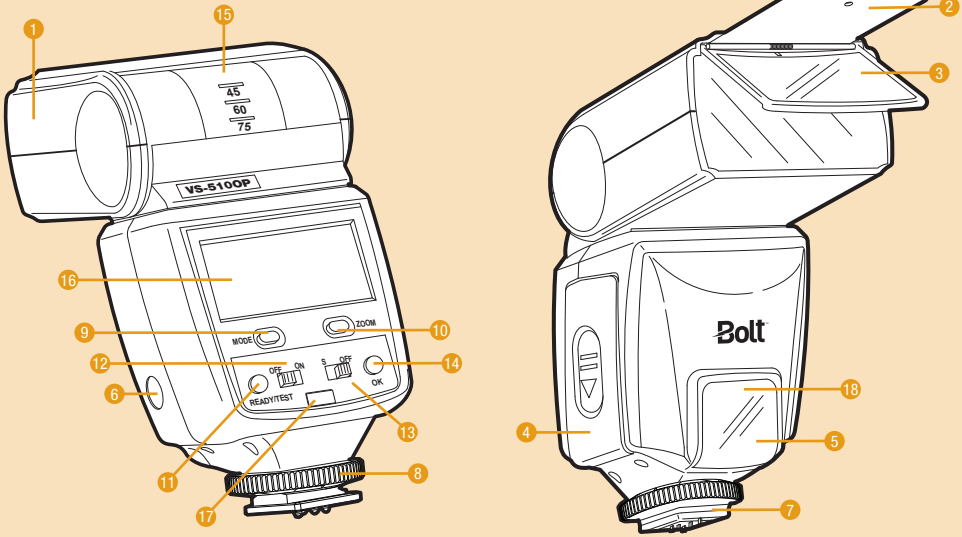
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Overview

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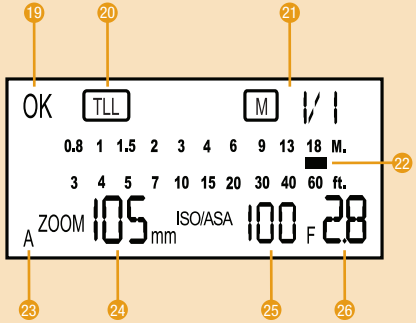
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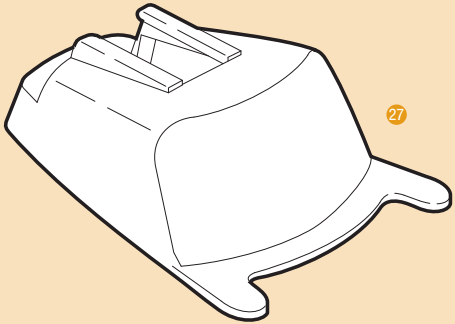
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19. Automatic exposure confirmation
20. Mode / High-speed sync status
21. Manual flash output level / Slave group and channel / Slave mode
22. Recommended maximum flash-to-subject distance (in meters and feet)
23. Zoom mode
24. Zoom position
25. Power saving / Camera or film ISO/ASA setting
26. Camera aperture (f-stop)
27. Stand / Tripod mount

Warnings

Before using your VS-5100P, please read the following safety notices carefully and thoroughly to ensure safe use, and to help prevent damage to your flash or injury to yourself or others.

- Do not fire the flash at close range directly into the eyes of people or animals. This can cause damage to the retina and may even lead to blindness.
- To avoid overheating and damaging your flash unit, please wait for at least 10 minutes after 20 continuous flashes at full power.
- Do not disassemble or attempt to repair this product yourself. There are high-voltage components inside that can produce a hazardous electric shock.
- Keep this product and its batteries out of reach of children.
- Use only the power sources specified in this manual.
- Always switch the flash off before changing the batteries.
- Always install AA batteries of the same type, brand, and age. Do not combine different types or brands, or old and new batteries. This could cause batteries to leak, overheat, or explode.

- Install batteries in the proper orientation, according to the indicator in the battery chamber. Installing batteries in the reverse orientation could cause them to leak, overheat, or explode.
- Do not use or store the VS-5100P in flammable conditions (such as environments containing flammable gases or liquid chemicals). This could damage the flash, start a fire, or cause an electric shock.
- Do not clean the VS-5100P with agents containing corrosive or flammable substances such as paint thinner, benzene, or nail polish remover.
- This product is not water resistant. Keep it away from rain, snow, humidity, and general moisture.
- Should the VS-5100P get damaged, do not touch any exposed interior metal parts. If touched, they may generate an electric shock or cause a malfunction. Promptly remove the batteries and take the product to an authorized service center for repair.
- If you detect excessive heat, smoke, or a burning smell coming from the flash, immediately stop operation and remove the batteries to prevent the product from igniting or melting. Take the product to an authorized service center for repair.
- Do not drop or otherwise cause a strong physical impact to the VS-5100P, as this could cause a malfunction that may cause it to explode or ignite.
- Remove all batteries from the VS-5100P before long-term storage in order to prevent the product from igniting or leaking corrosive liquids.

- Do not store or use this product at temperatures above 40°C / 104°F.
- Keep the metal contacts in the battery compartment clean and free of corrosion and dirt. Do not touch them with your fingers. Corrosive elements on the contacts can damage the VS-5100P and prevent it from functioning properly. Contacts may be cleaned with isopropyl alcohol on a cotton swab.
- Dispose of used batteries properly. Never heat them or throw them into a fire, as this could cause the batteries to leak corrosive liquids, generate heat, or explode.

Installing Batteries

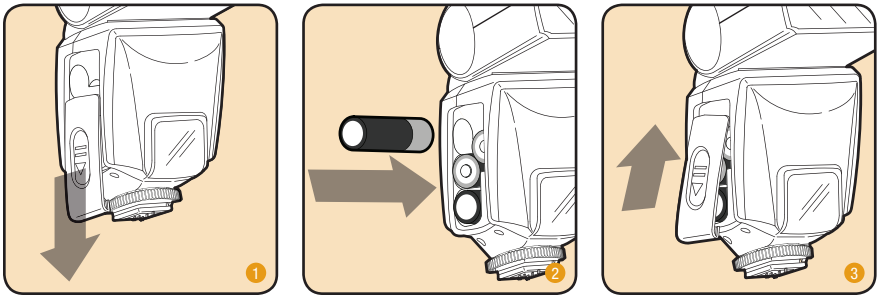
The VS-5100P can be powered by four AA batteries of several types:

- Lithium (1.5V)
- Nickel-metal hydride (Ni-MH) (1.2V)
- Alkaline (1.5V)

Note: For the fastest recycle times and longest battery life, lithium or Ni-MH batteries are recommended.

To install batteries, make sure the VS-5100P is turned off and follow these steps:

1. Press on the battery compartment cover and slide it in the direction of the arrow to remove it.
2. Insert batteries in the orientations indicated by the illustrations inside the compartment.
3. Replace the battery compartment cover by pressing and sliding it into place, in the opposite direction of the arrow on the cover.



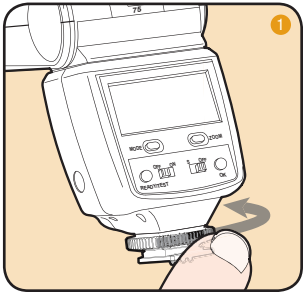
Important!

Replace all four batteries at the same time. Do not mix battery types or brands, or use old and new batteries together.

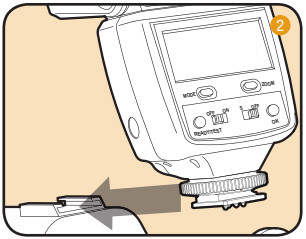
Mounting the Flash

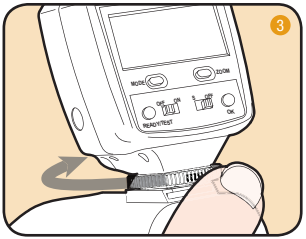
To mount the flash on your camera, make sure the VS-5100P is turned off and follow these steps:

1. Turn the mounting foot lock counter-clockwise to loosen it.



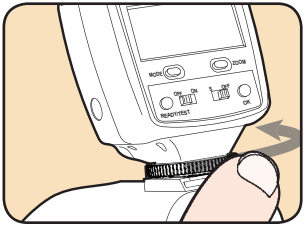
2. Slide the mounting foot all the way into your camera's hot shoe.
3. Turn the mounting foot lock clockwise until snug. Do not overtighten.





To dismount the flash from your camera, make sure the VS-5100P is turned off and follow these steps:

1. Turn the mounting foot lock counter-clockwise to loosen it.
2. Slide the mounting foot out of your camera's hot shoe.



Mounting the VS-5100P on the included stand:

You can mount the VS-5100P on the included stand in the same way you would mount it on your camera. This allows you to set the flash up on a flat surface, or to attach it to a tripod head, light stand, or clamp that has a compatible ¼-20 screw mount.

Turning on the Flash and Firing a Test

To turn the flash on, simply slide the power switch to the On position.

When the flash is ready to fire, the Ready light will glow red. If the flash is mounted on your camera, a flash icon will also appear in the camera's viewfinder.

To fire a test flash, press the Ready light / Test button.

Automatic power-saving function: After 3 minutes of inactivity, the flash will automatically enter power-saving mode to conserve battery life. The LCD will display a single OFF indicator, and the Ready light will turn off. To reactivate the VS-5100P, simply press any button on the control panel, or tap your camera's shutter-release button. During long periods of inactivity, it is recommended that you use the power switch to turn the flash off completely.

LCD illumination: When a button is pressed, the LCD will be illuminated for about 5 seconds.

Important!

Make sure that the slave mode switch is set to Off when the flash is mounted on your camera. Only switch it to the "S" position when using the flash off-camera as a wireless slave.

Using the Automatic TTL Flash Mode

When the VS-510OP is mounted on a compatible camera, it can set the appropriate flash level automatically, in conjunction with the camera's through-the-lens (TTL) metering system. To use the automatic mode, mount the flash on the camera and follow these steps:

1. When you turn the flash on, it will be in automatic mode. This will be confirmed by the TTL mode indicator on the LCD. If the flash has been set to another mode, press the Mode button repeatedly to cycle through the flash modes until "TTL" is shown on the LCD.
2. Make sure your camera is set on a programmed or automatic mode, or on a priority mode such as aperture-priority.
3. Press the shutter-release button on your camera halfway to ensure that the camera is communicating with the flash. The camera's ISO and aperture settings will be displayed on the flash LCD, and a flash icon will appear in the camera's viewfinder.
4. Make sure that your subject is not farther away than the suggested maximum flash-to-subject distance indicated on the flash LCD.

5. Press your camera's shutter-release button to take the picture. The OK indicator will flash on the VS-5100P's LCD, and the OK light below it will glow green momentarily to indicate that the proper exposure was attained.

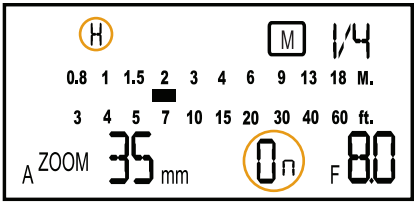
Note: The ISO and aperture indicators on the VS-5100P provide readouts up to ISO 800 and f/11, in full-stop increments. The indicator will display the ISO number and f-stop closest to your current camera settings.

Using High-Speed Sync

You can use shutter speeds higher than your camera's top flash sync speed with the VS-5100P by activating high-speed sync in automatic TTL mode. High-speed sync lets you use shutter speeds as fast as 1/8000 second. This is especially useful when using large apertures in bright situations or when freezing motion.

To activate high-speed sync mode on the VS-5100P, press the Mode and Zoom buttons simultaneously. “H” and “On” will flash three times on the LCD to show that the mode has been activated.

To turn high-speed sync off, press the Mode and Zoom buttons again. “H” and “Off” will flash three times on the LCD to show that the mode has been turned off.



Using Red-Eye Reduction

The VS-5100P supports red-eye reduction mode, which is set automatically by your camera. Consult your camera’s manual for more information about this feature.

Using Flash Exposure Compensation

In automatic TTL mode, you can use flash exposure compensation to adjust the VS-5100P's flash output incrementally, just as you would adjust exposure with the exposure compensation function on your camera.

To apply flash exposure compensation, press the flash exposure compensation button on your camera and adjust the flash exposure level up or down with your camera's controls.

The flash exposure compensation range and controls vary between different camera models. Consult your camera's manual for more information about this feature.

Using the Manual Flash Mode

You can also set the VS-5100P's flash output level manually, for greater creative control over your images. Six manual settings are available: 1/1, 1/2, 1/4, 1/8, 1/16, and 1/32. The 1/1 setting is the full-power flash, and each successive setting halves the light output. To use the manual mode, turn the flash and camera on and follow these steps:

1. Press the Mode button repeatedly to cycle through the flash modes until "M" and the flash output level indicator show on the LCD. Continue to press the Mode button to select the desired flash output level.
2. Set the exposure settings you want to use on your camera. The highest shutter speed available will be your camera's flash sync speed. To use higher shutter speeds, switch to automatic TTL mode and activate high-speed sync (see *Using High-Speed Sync* on page 19).
3. Make sure that your subject is not farther away than the suggested maximum flash-to-subject distance indicated on the flash LCD and take a test shot. Check the exposure on your camera's LCD.
4. Adjust your camera's exposure settings and the light output level of the flash as needed.
5. Press your camera's shutter-release button to take the picture.

Note: For best results, a handheld light meter is recommended when using the manual flash mode.

Important!

To avoid overheating and damaging your flash unit, please wait for at least 10 minutes after 20 continuous flashes at full power. The flash will automatically shut off if it gets overheated.

Controlling Flash Coverage (Zoom)

The VS-5100P's angle of coverage can be adjusted ("zoomed") to match the focal length of your lens, so that your image is evenly illuminated from edge to edge.

When the flash zoom setting is adjusted, the position of the reflectors inside the flash head shift in order to make the angle of coverage wider or narrower.

The available zoom positions are 24mm, 28mm, 35mm, 50mm, 70mm, 85mm, and 105mm.

Automatic zoom control: When you turn the VS-5100P on, the zoom mode indicator on the LCD will show an A to indicate that it is in automatic mode and at the default 35mm position. When you press the shutter-release button on your camera halfway to initiate communication between the camera and the flash, the flash zoom will adjust to match the lens focal length and the closest zoom setting will be displayed on the LCD. If you zoom your lens, the flash zoom setting will change automatically.

When the flash head is angled up or swiveled to the side, the zoom position is set to 50mm. The “50mm” indicator will flash on the LCD, and the zoom can then be manually adjusted (see below).

Note: Older cameras that do not offer digital data transmission with the flash do not support the automatic flash zoom control. The manual zoom control must then be used.

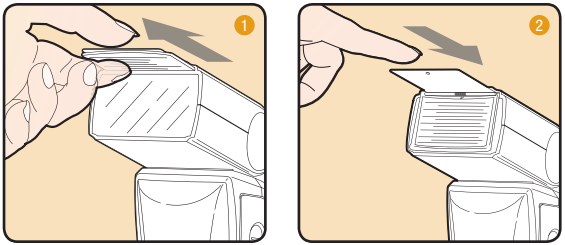
Manual zoom control: To manually select a setting that corresponds to the focal length of your lens, press the Zoom button to make the M indicator for manual mode appear. Then continue to press the button to cycle through the available focal length settings.

Note: Manual zoom can also be used to achieve special effects, such as using the 105mm setting with a wide-angle lens to produce a vignette.

Using the flash with wide-angle lenses: When you have a lens wider than 24mm mounted on your camera, you can use the built-in diffuser panel to give the flash an angle of coverage equivalent to that of an 18mm lens.

To use the diffuser:

1. Pull the diffuser and reflector panels out of their slot in the flash head.
2. Push the reflector back in, and let the diffuser lay flat against the flash lens.



The diffuser also softens the light, providing an alternative when no surface is available for bouncing the flash (see *Bouncing Your Flash* on page 27).

Using the Autofocus-Assist Light

Camera autofocus systems can have difficulty locking onto a subject in dim light. When the ambient light level is low, the VS-5100P will emit a red autofocus-assist beam when you press your camera's shutter-release button halfway to autofocus. The camera will then be able to autofocus by locking onto the projected light.

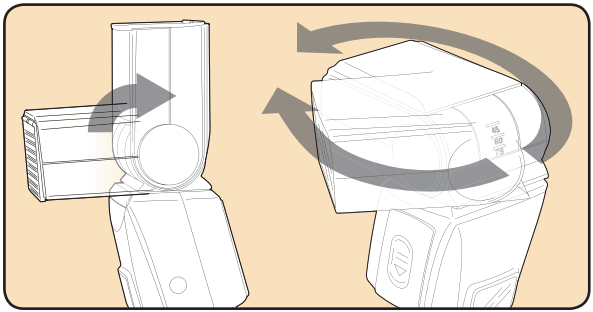
Important!

The AF assist light may not be supported by all Micro Four Thirds cameras.

Bouncing Your Flash

Using flash to directly illuminate a subject often creates harsh, unnatural, and unattractive shadows. To avoid this, the flash can be tilted or swiveled, allowing you to aim your flash at a large white or neutral-colored surface, such as a ceiling, a wall, or a reflector. The light will bounce off of the larger surface before striking your subject, providing softer, more natural illumination.

The VS-5100P flash head can be tilted up at 45-, 60-, 75-, and 90-degree angles to the lens. It can also be swiveled horizontally 180 degrees to the left and 120 degrees to the right.

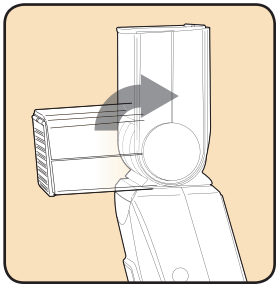


When bouncing your flash, you may need to adjust your exposure settings, since the level of light falling on your subject will be reduced. The farther away the bounce surface and your subject are, the more illumination will be reduced.

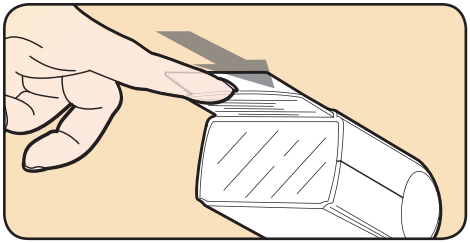
Tip: Bouncing your flash off of colored surfaces can create a color cast in your images. Bouncing off of a white or neutral-colored surface will not alter the color of the light, while bouncing off of a gold-toned surface can give portraits a warmer look. Other colors, while usually not desirable, can be used for creative effects.

Creating catchlights: Catchlights are the reflections that appear in people's eyes in photographs. Without catchlights, eyes can have a dull, lifeless look. To create catchlights in your subjects' eyes when bouncing your flash, follow these steps:

1. Position the flash head at the 90-degree angle (pointing straight up) to bounce your flash off the ceiling or an overhead reflector.



2. Pull the built-in reflector and diffuser panels all the way out of their slot in the flash head. Push the diffuser back in while leaving the reflector extended.



Using Rear- or Second-Curtain Synchronization

When you photograph a moving subject with a slow (1/30 second or longer) shutter speed and a flash, the flash will freeze the moving subject and the long exposure will cause motion blur and light trails to appear in the image, especially in low light.

This “slow-sync” flash technique, also referred to as “dragging the shutter,” can be applied in two different ways: The flash can be synchronized with the camera’s shutter release so that it fires at the beginning of the period when the shutter opens, or it can fire near the end of that period.

The former is called “front-curtain” or “first-curtain” flash sync, and the latter is called “rear-curtain” or “second-curtain” sync. Front-curtain sync causes motion blur and light trails to appear in front of moving subjects, while rear-curtain sync makes them appear behind moving subjects. That means rear-curtain sync creates a more realistic impression of movement.

The VS-5100P supports rear-curtain sync modes on cameras that offer the setting. Consult your camera’s manual to find out how to activate it. Use your camera’s manual or shutter-priority mode to control the amount of blurring and light trails you capture by varying the shutter speed.

Using Your VS-510OP as a Wireless TTL Slave

The VS-510OP is equipped with advanced wireless TTL flash functions, allowing you to fire the flash remotely while still maintaining full TTL control. In addition, it can be set to multiple channels and groups, giving you unlimited creative lighting possibilities.

Important terms: Here are the terms you'll need to be familiar with in order to learn how to work with multiple wireless flash units:

Master: This can be the camera's built-in flash, a flash unit mounted on the camera, or a dedicated wireless controller. The master controls how the slave flashes operate in wireless TTL mode. Only one master flash is allowed in a multiple-flash photography setting. Note that not all cameras and flashes offer master capability.

Slave or remote flash: Flash units that are not directly connected to the camera and are controlled via the master flash or a controller are called "slave" or "remote" units. There is no limitation on the number of remote flash units that can be used at once.

Groups: With the VS-5100P's wireless system, you can assign remote flash units to any one of three groups (A, B, or C) and set the mode and power ratio for each group.

Channels: Master and slave flash units exchange data through channels. On the VS-5100P, four channels (1, 2, 3, 4) are available. You can select the channel you prefer for communication between the master and remote flash units. You can use this option to prevent your remote units from being triggered by the master unit of another photographer working with the same type of system nearby.

Setting the remote TTL flash units: To set a VS-5100P flash unit to function as an automatic TTL slave, follow these steps:

1. Make sure the master flash or controller on your camera is on and set to automatic TTL mode.
2. Select the appropriate group and channel on the master unit. Consult the master's manual to find out how to set it.
3. Make sure that the slave mode switch on the VS-5100P is set to the Off position.
4. Press the Mode button repeatedly to cycle through the mode options on the LCD. After the manual modes, the following slave TTL (STTL) modes will be displayed: 1A, 1B, 1C, 2A, 2B, 2C, 3A, 3B, 3C, 4A, 4B, 4C.

The numbers represent the channel, while the letters represent the group.

A. When using a single flash, set it to the same group and channel as the master.
B. When using multiple flash units, select the same group and channel for all units being used in a particular light position. For example, if you are using three VS-510OP units, you might want to set two as a main light on 1A, and set the third as a fill light on 1B.

5. If desired, adjust the flash coverage angle by pressing the Zoom button repeatedly.
6. Make sure that the red light on the front of the flash is flashing. This indicates that the unit is ready to fire in wireless TTL slave mode.

Using Your VS-510OP as a Wireless Manual Flash

For even greater creative control, you can set the output levels of your remote flash units manually.

Using the optical slave feature, the VS-510OP can be set to fire whenever it detects a signal from the master flash. This works optically—when the VS-510OP "sees" another flash firing, it will instantaneously fire along with it.

Setting the remote flash units manually: To set a VS-510OP flash unit to function as a slave with the output level selected manually, follow these steps:

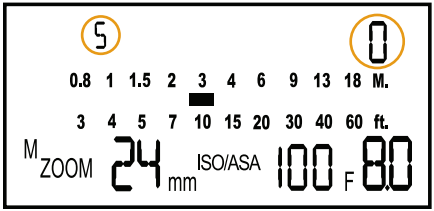
1. Make sure that the slave mode switch is set to the Off position.
2. Press the Mode button repeatedly to cycle through the mode options on the LCD. Select manual mode and the desired flash output level (1/1 through 1/32).
3. If desired, adjust the flash coverage angle by pressing the Zoom button repeatedly.
4. Move the slave mode switch to the “S” position.
5. Set the slave mode as desired (see below).
6. Make sure that the master flash on your camera is on and set to the appropriate mode. If you don’t want the master flash to illuminate a subject in front of the camera, tilt the head upward.

Setting the slave mode:

Depending on your camera and flash settings, the master flash may emit more than one burst of light in quick succession (called a “pre-flash”). Pre-flash is used to help the camera meter and/or focus, and is done automatically by the camera. If the slave flash is not set correctly, it may be triggered by the pre-flash and fire

before the camera's shutter opens. In order to ensure that the VS-510OP fires at the correct time, there are three different slave modes available: modes 0, 1, and 2. To select the correct slave mode, follow these steps:

1. Make sure the slave mode switch is in the "S" position.
2. Press the Mode button repeatedly to cycle through the slave mode options on the LCD.
   A. In mode 0, the flash will fire on the first (or only) burst of light. Use this mode when the master flash is set to manual.
   B. In modes 1 and 2, the slave will ignore either one or two pre-flashes, respectively. Use these modes when the master flash is set to TTL or automatic modes. Whether the master emits one pre-flash or two will depend on the camera and settings—always take a test exposure to ensure that the slave is set correctly.

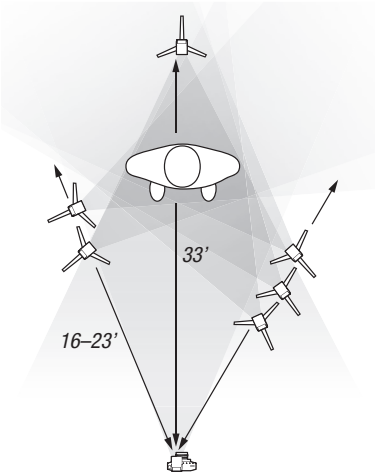


Important!

Some cameras, when set to red-eye reduction, will emit a series of quick flashes lasting a second or more. This may not work properly with any slave mode. We suggest you avoid using red-eye reduction when using the VS-5100P as a slave.

Positioning Remote Flash Units

You can create a professional lighting setup by positioning remote units singly or in groups to function as main, fill, accent, and other lights. Metering your scene with a handheld light meter and setting your light ratios to achieve specific looks will give you a professional level of creative control.



When positioning wireless slaves to light a subject, keep in mind the following:

- The effective communication range between master and remote flash units is approximately 33 feet (10 meters) in the front position, and approximately 16 to 23 feet (5 to 7 meters) at both sides. These ranges may vary, depending on the ambient light.
- The flash head should not be aimed directly into the camera lens.
- The wireless TTL sensor is located on the side of the VS-5100P, while the optical sensor is located on the front. Make sure that the correct sensor is facing the master flash and that there is no obstruction between the two units.
- When photographing outdoors or in bright ambient light, the sensors can be overwhelmed by ambient light, which will lower their sensitivity.
- To avoid creating interference between flash units, using more than three in a single group is not recommended.

Upgrading the Firmware on the VS-510OP

In order to ensure compatibility with future cameras, the VS-5100P's firmware may be updated. This can be done to ensure proper communication with new cameras, or to add new features.

Visit www.boltflashes.com/firmware to check if a new firmware version has been released. Follow the online instructions to upgrade.

Troubleshooting

Problem	Solution
The flash is stuck in the camera hot shoe.	Make sure that the mounting foot lock is released. (Page 15)

Problem	Solution
The flash is turned on but won't fire.	Make sure that fresh batteries are installed and in the proper orientation. (Page 12)
The flash is set up as a wireless TTL slave but won't fire.	• Make sure that the master flash is within the transmission range and the wireless sensor on the slave is pointing toward the master flash. Remove any obstructions in the line of sight between the two. (Page 37) • The ambient light may be too high. (Page 37)
The flash is set up as a manual (optical) slave, but the light is not noticeable in the picture.	Make sure that the flash is set to the appropriate slave mode. (Page 34)
The edges of images look dark.	Make sure that the flash zoom setting corresponds to the focal length of your lens. (Page 24)
There's a whining sound coming from the flash.	This is normal and does not indicate a malfunction. When the flash becomes warm from continuous use, vibrations inside the unit may cause this sound. It will dissipate as the unit cools.

Specifications

Type: On-camera and wireless TTL automatic and manual flash

Compatible cameras: Olympus and Panasonic DSLR and Micro Four Thirds cameras with TTL flash system support.

Guide number (at 50mm focal length, ISO 100): 141 feet / 43 meters

Flash coverage: 24mm–105mm (18mm with diffuser panel)

Flash duration: 1/1,000–1/20,000 second

High-speed synchronization: Yes

Flash recycle time: 0.5–9 seconds in automatic mode

Manual mode power output: 1/1, 1/2, 1/4, 1/8, 1/16, 1/32

Wireless transmission method: Optical pulse

Wireless transmission range: Up to 33 feet (10 meters)

Wireless channels: 4

Controllable wireless slave groups: 3

Slave timing modes: Instant sync, skip one pre-flash, skip two pre-flashes (S0, S1, S2)

Power source: 4 AA lithium, Ni-MH, or alkaline batteries

Tilt positions: 0º, 45º, 60º, 75º, 90º

Swivel range: Right 0º–120º, Left 0º–180º

Dimensions: Approx. 2.5 x 3.9 x 4.7 inches / 65 x 100 x 120 mm

Weight: Approx. 9.2 ounces / 260 grams without batteries

Guide Number Chart*

Zoom Position	GN - Meters	GN - Feet
24mm	34	112
28mm	36	118
35mm	38	125
50mm	43	141
70mm	45	148
85mm	47	154
105mm	50	164

*at ISO 100

FCC notices for customers in the U.S.A.

Tested to comply with FCC Standards for home or office use.

FCC Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CAUTION

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference, which can be determined by turning the equipment off and on, the user is encouraged to try to correct to the interference by one or more of the following measures: re-orient or re-locate the receiving antenna; increase the separation between the equipment and receiver; connect the equipment into an outlet on a circuit different from that to which the receiver is connected; or consult the dealer or an experienced radio/TV technician for help.

You are cautioned that any changes or modifications not expressly approved in this manual could void the user's authority to operate the equipment.

ICES notices for customers in Canada:

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

Limited Warranty

Bolt provides a limited warranty that this product is free from defects in materials and workmanship to the original purchaser under normal use for a period of one (1) year from the original purchase date or thirty (30) days after replacement whichever occurs later. Our responsibility with respect to this limited warranty shall be limited solely to repair or replacement, at its option, of any product which fails during normal consumer use. To obtain warranty coverage during the Warranty Period, contact your place of purchase ("Seller") to obtain a return merchandise authorization ("RMA") number, and return to Seller the defective product along with proof of purchase and the RMA number. This warranty does not extend to damage or failure which results from misuse, neglect, accident, alteration, abuse, improper installation or maintenance. EXCEPT AS PROVIDED HEREIN, BOLT MAKES NEITHER ANY EXPRESS WARRANTIES NOR ANY IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. This warranty provides you with specific legal rights, and you may also have additional rights which vary from state to state.

Customer Service

For customer service, please go to www.boltflashes.com.

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